

THE EFFECTS OF NORMATIVE CLASSROOM AGGRESSION AND TEACHER
SUPPORT ON CHANGES IN ETHNICALLY DIVERSE ELEMENTARY
STUDENTS' AGGRESSION

A Dissertation

by

CLARISSA IVETTE KUHNS

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

August 2008

Major Subject: School Psychology

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ABSTRACT

The Effects of Normative Classroom Aggression and Teacher Support on Changes in
Ethnically Diverse Elementary Students' Aggression. (August 2008)

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Chair of Advisory Committee: Dr. Jan N. Hughes

This study examined the joint effects of the quality of teacher-student relationship support (TSRS) and normative levels of classroom aggression on individual aggression in a sample of 687 second-grade children who entered first grade with relatively low reading readiness skills. Using a prospective design, the present study explored the joint effects of teacher-rated TSRS and normative classroom aggression on both teacher- and peer-rated aggression, controlling for levels of baseline aggression. The study also examined the effect of peer-rated TSRS on teacher- and peer-rated aggression. Furthermore, ethnic and sex differences on study variables and on their relationships were examined. Boys were rated by teachers and peers as having higher aggression levels and lower Time 1 and Time 2 TSRS than girls. African American students were rated by teachers and peers as having higher Time 1 and Time 2 aggression levels. African American students were rated by teachers as having lower Time 1 and Time 2 TSRS than Hispanic and White students. Hispanic students had higher peer-rated TSRS than African American students at Time 1. Furthermore,

African American and Hispanic students were more likely to be placed in higher aggressive classrooms than were White students. Regression analyses found that, after controlling for baseline aggression, teacher-rated TSRS predicted peer- and teacher-rated aggression. However, neither normative classroom aggression nor the interaction of normative classroom aggression with teacher-rated or peer-rated TSRS predicted teacher-rated aggression. Peer-rated TSRS did not predict teacher-rated or peer-rated aggression. There was no evidence ethnicity moderated the relationships between TSRS and aggression. Study limitations and implications for intervention are also discussed.

ACKNOWLEDGEMENTS

The successful completion of this dissertation would not have been possible without the help of several individuals. First and foremost, I thank God for walking with me and carrying me when the load became too heavy. San Judas Tadeo, gracias por sus intercesiones.

I would like to extend a sincere appreciation to my committee members, Dr. Victor Willson, Dr. Jorge Gonzalez, and Dr. Antonio Cepeda-Benito, for their time, commitment, and helpful suggestions. Le quiero agradecer a mi familia. No hubiera podido terminar sin el apoyo incondicional que me ofrecieron cada uno de ustedes. Nunca me faltaron las palabras de motivación para no rendirme durante este últimos años. Los quiero mucho. Jesse, words cannot express how thankful I am for your motivating words, unwavering support, and most of all, your unending love throughout my graduate career. You are my pillar of strength and I would not have made it without you by my side.

Marilyn, Tanya, and Lisa, I could not have picked a better group of three to walk by my side these past 5 years. We were told at the beginning of this long trek that we would need each other to survive. Your friendship is my proof. I will treasure your friendship always. Seth and Alex, you boys made internship an unforgettable experience. Your optimism has helped me hope that the world is truly getting better, especially with our help. Thank you to all of the Project Achieve staff, past, present, and future. There will always be a special place in my heart for you. Christy, thank you for telling me everything was going to be okay after each dissertation meeting. Your debriefing and support helped me keep it together each and every time.

Last but especially not least, I would like to thank Dr. Jan Hughes, my chair, professor, mentor, but most of all, my friend. I have had the honor of working with one of the most intelligent women I know, love, and admire. My time at Project Achieve was priceless and I owe much of my success to your support and guidance. If Diana Baumrind had dedicated herself to theorizing mentorship styles, you would be a perfect example of the Authoritative Mentor. Thank you for giving the perfect balance of warmth and discipline. Without that combination, I would have never have made it this far. It was a true blessing to have you as my advisor.

TABLE OF CONTENTS

	Page
ABSTRACT	iii
ACKNOWLEDGEMENTS	v
TABLE OF CONTENTS	vii
LIST OF TABLES	ix
CHAPTER	
I INTRODUCTION.....	1
Background	1
Factors that Contribute to Aggression.....	3
Classroom Context and the Development of Aggression	9
Ethnicity, Aggression, and Teacher-Student Relationships	14
Study Purpose and Hypothesis	18
II RESEARCH DESIGN AND METHODS	20
Participants	20
Measures.....	22
III RESULTS.....	27
Descriptive Statistics	27
Multiple Regression Analyses.....	34
IV DISCUSSION AND CONCLUSION	38
Relationship Between Teacher Support and Individual Child Aggression.....	39
Gender and Ethnic Differences on Study Variables.....	41
Relationships Between Teacher Support, Classroom Aggression, and Ethnicity	42
Limitations	43
Implications.....	44

	Page
REFERENCES.....	46
VITA	65

LIST OF TABLES

	Page
Table 1 Descriptive Statistics for Study Variables	28
Table 2 Study Variable Means by Gender and Ethnicity	29
Table 3 Study Variable Correlations.....	30
Table 4 Study Variable Means by Ethnicity	32
Table 5 Summary of Multiple Regression Analysis for Predicting Time 2 Peer-rated Individual Aggression $R^2 = .39$	35
Table 6 Summary of Multiple Regression Analysis for Predicting Time 2 Teacher-rated Individual Aggression $R^2 = .47$	36
Table 7 χ^2 Outcomes for Models Using Three Ethnic Groups (AA, H, W)	37

CHAPTER I

INTRODUCTION

Background

Several studies have shown relationships between early childhood aggression and negative developmental and adjustment outcomes. Early aggressive behaviors such as temper tantrums and grade school aggression have been shown to predict adolescent and adult offenses (Patterson, DeBaryshe, & Ramsey, 1989). A number of studies have shown childhood disruptive and aggressive behavior as one of the major predictors of adolescent and adult criminality (Loeber, Green, Lahey, Frick, & McBurnett, 2000; Moffitt, Caspi, Harrington, & Milne, 2002; Nagin & Tremblay, 1999; Reid, Patterson, & Snyder, 2003; White, Moffitt, Earls, Robins, & Silva, 1990). Studies have shown that 70% to 90% of violent offenders were highly aggressive when they were young (Farrington, 1978; Loeber & Stouthamer-Loeber, 1987; Magnusson, Stattin, & Dunér, 1983; Moffitt et al., 2002; Patterson, Forgatch, Yoerger, & Stoolmiller, 1998; Robins, 1966).

Early aggression is associated with a developmental pattern that often leads to antisocial behavior (Loeber, 1990; Moffitt, 1993). There are two predominant pathways of antisocial behavior described in the literature (Loeber & Stouthamer-Loeber, 1998; Moffitt, 1993; Patterson, Reid, & Dishion, 1992; Reid et al., 2003). Late onset

This dissertation follows the style of *Journal of School Psychology*.

aggressive behavior is marked by problem behavior during the teenage years without any notable antisocial behavior in early childhood. Earlier research has suggested that this course typically has a brief tenure and usually is not indicative of aggressive behavior in adulthood (Loeber & Stouthamer-Loeber, 1998; Moffitt, 1993). However, more recent research has shown that late-onset aggression persists into adulthood, although at less extreme levels (Moffitt et al., 2002).

The second, more severe course of aggressive behavior begins in early childhood. There is a greater risk for adult delinquency in children displaying aggressive behavior before the age of 12 (Carroll et al., 2006; Loeber, 1988; Moffitt, 1993; Reid et al., 2003). One study found that 4th grade boys whose antisocial behavior score was above the median were 13 times more likely to be arrested before the age of 14 than low-scoring boys. Of those children arrested early, early-onset children were 39.7 times more likely of being a chronic juvenile offender than non-early-onset children (Patterson et al., 1998; Reid et al., 2003).

Given the association between childhood aggression and later outcomes, researchers have concentrated efforts on preventing early aggression and on intervening early with children with elevated aggressive behaviors in an attempt to prevent further escalation. Early intervention efforts target risk and protective factors known to affect aggressive trajectories. The following is a brief summary of these factors. Of particular interest to this study, factors that affect aggression in Hispanic youth are also presented.

Factors That Contribute to Aggression

Early Factors

Aggression is recognized as a result of multiple and interactive factors. Aspects of family context such as family discord, marital dissatisfaction, and lack of parental warmth have all been shown to predict aggressive behavior (Cavell, 2000; Frick & Loney, 2002; Gardner, 1987; Holden & Ritchie, 1991; Patterson et al., 1992; Reid et al., 2003; Smith & Jenkins, 1991; Wahler, 1997). Children from violent homes have been shown to intervene and directly become entangled within the conflict (Cummings, Pellegrini, Notarius, & Cummings, 1989). This entanglement has been shown to increase negative feelings such as anger and sadness, which are precursors to aggression (Cummings, Ballard, El-Sheikh, & Lake, 1991). Not all violent homes produce aggressive children. Reid et al. (2003) suggest the child's individual response mediates the effect of marital discord on the child's behavior. Marital conflict is less harmful to children who have developed good coping strategies and emotional security.

Parenting styles also greatly influence the progression of aggressive behavior. Baumrind (1991) discussed parenting styles that differed in the balance of parental warmth and demandingness. Children whose parents display a balance of warmth and assertiveness, or control, are more likely to act and feel like a member of a greater society and to imitate parents' examples and internalize their directives (Kuczynski & Hildebrandt, 1997). Children who have a sense of autonomy while feeling a sense of security are more compliant and are more likely to internalize their parents' values (Grusec & Goodnow, 1994; Kuczynski & Hildebrandt, 1997). Aggressive children

typically have deficits in emotional and behavioral self-regulation that leads to aggressive and coercive behavior (Reid et al., 2003). This problem behavior leads parents to use more power-assertive strategies and to display less warmth towards their child. Research shows that parents of aggressive children tend to demonstrate more coercive and demanding behavior towards the child while offering less acceptance (Cavell, 2000; Reid et al., 2003). Consequently, children respond to this authoritarian parenting style with more noncompliance. Patterson et al. (1992) suggest that high rates of child aggressive or disruptive behaviors may cause parents to react in more ineffective, irritable and coercive ways with their children.

Hispanic parents typically have a more authoritarian parenting style than Euro-American and African American parents (Florsheim, Tolan, & Gorman-Smith, 1996; Hill, Bush, & Roosa, 2003). Although conduct problems are negatively related to parental acceptance and nurturing in Hispanic families, maternal acceptance co-occurs with the tendency to exhibit greater power-assertive control strategies (Hill et al., 2003). If parental acceptance co-occurs with authoritarian practices in Hispanic families, children may perceive the authoritarian behaviors as evidence of paternal care and concern, thereby reducing the impact of such behaviors on aggression. Furthermore, Hispanic boys tend to be more deferential with their mothers and less assertive toward their fathers than African American boys (Florsheim et al., 1996). The lack of assertiveness and submissiveness may be a result of the value of respect central to the Hispanic culture.

Biological Factors

Minor physical abnormalities in the brain have been found in higher rates among violent offenders. Many neuropsychological abnormalities that have been linked to aggressive behavior include the disruption of the ontogenesis of the fetal brain, maternal drug abuse, poor prenatal nutrition and pre and postnatal exposure to toxic agents (Fogel, Mednick, & Michelsen, 1985; Kandel, Brennan, Mednick, & Michelson, 1989; Needleman & Bellinger, 1981). These abnormalities may cause neural deficits that affect executive functioning. Neuropsychological deficits associated with frontal cortex impairment and lack of problem-solving skills have been frequently linked to antisocial behavior (Caspi, Lynam, Moffitt, & Silva, 1993; Kandel & Freed, 1989; Lueger & Gill, 1990; Moffitt, 1993). Also consistent with a neuropsychological deficit view of the development of aggression, delinquent children score significantly lower on measures of language skills, verbal abilities, and visual-spatial and visual-motor integration skills (Davis, Sanger, & Morris-Friehe, 1991; Hurt & Naglieri, 1992; Moffitt & Silva, 1988). Poor language acquisition in infants and reading disabilities have also been found as predictors of delinquency (Cornwall & Bawden, 1992; McGee, Share, Moffitt, Williams, & Silva, 1988; Stattin & Klackenberg-Larsson, 1993). Presumably, the neuropsychological factors responsible for language deficits are also implemented in aggression responding. Research also shows a comorbidity of ADHD and conduct disorder that affect children's neurological development. Moffitt (1993) found that adolescent boys who exhibited signs of attention-deficit disorder with hyperactivity and conduct problems also had very poor verbal and executive functions and had a history of

severe aggressive behavior between the ages of 3 and 15. Children who only exhibited problem behavior and did not exhibit the symptoms of inattentiveness and hyperactivity did not have the same neuropsychological deficits. Furthermore, children who solely had problems with attention and hyperactivity were not necessarily at greater risk for aggressive behaviors later on in life. These findings support the view that those youth who have co-occurring hyperactivity, impulsivity and conduct problems are at a very high risk for later delinquency (Farrington, Loeber, & Van Kammen, 1990; Loeber, 1988; Magnusson, 1988). Children who have a comorbidity of ADHD and conduct disorder are likely to have executive functioning deficits. Presumably, it is these deficits that cause difficulty in rule governed behavior that is expressed in both hyperactivity, impulsivity and aggressive behavior.

Sex differences also play a role in the development of aggression. Although most of the literature has focused on aggression in boys (Moffitt, 1993; Nagin & Tremblay, 1999; Patterson et al., 1992; Vitaro, Brendgen, Pagani, Tremblay, & McDuff, 1999), literature on girls has increased in recent years. Some studies suggest that girls follow the same dual-path developmental aggression pathway as boys (Broidy et al., 2003; Cote, Zoccolillo, Tremblay, Nagin, & Vitaro, 2001; Fergusson & Horwood, 2002; Schaeffer et al., 2006). Although girls and boys may have a similar development of aggression, they differ on the type of aggression being displayed. Physical and violent aggression is most often displayed by boys whereas relational aggression, is typically displayed more by girls (Broidy et al., 2003; Fergusson & Horwood, 2002; Schaeffer et al., 2006) .

Peer Relations

Children who have poor social skills and rule following abilities and who demonstrate aggressive behavior in the family tend to exhibit similar patterns of behavior with their peer groups (Dishion, Duncan, Eddy, Fagot, & Fetrow, 1994; MacKinnon-Lewis et al., 1994; Putallaz, 1987). According to Reid, Patterson, and Snyder (2003), because an aggressive child is likely to lack prosocial skills and may be uncooperative, the likelihood of coercive behavior is very high due to negative reinforcement. Once children are able to select their friends, children are more likely to associate with children who have low levels of coercive behaviors and who are more rewarding interaction partners (Conger & Simons, 1997; Gottman, 1991). Thus, aggressive children are often rejected by peers (Bukowski & Sippola, 2001).

Early peer rejection increases a child's risk for problem behavior (Dishion, 1990; Guerra, Asher, & DeRosier, 2004), perhaps because aggressive children tend to associate themselves with other aggressive, rejected children (Dishion, Patterson, Stoolmiller, & Skinner, 1991; Ladd, 1983; Losel, Bliesener, & Bender, 2007; Snyder, Horsch, & Childs, 1997). This association with aggressive children has been found to be a strong predictor in the course of aggressive behavior (Dishion, Capaldi, Spracklen, & Li, 1995; Dishion, Capaldi, & Yoerger, 1999; Losel et al., 2007; Patterson, Dishion, & Bank, 1984). Dishion, Spracklen, Andrews, and Patterson (1996) found that boys who engaged in discussion topics regarding negative behavior and rule-breaking with aggressive peers increased their delinquent behavior over the next two years, relative to those who associated with non-aggressive peers. Social reinforcement for rule breaking

among aggressive friends intensifies reciprocated aggressive behavior (Hawkins, Smith, Hill, Kosterman, & Catalano, 2007; Reid et al., 2003). However, having positive peer support reinforces pro-social skills and increases the likelihood of receiving positive interactions with peers (Hodges, Boivin, Vitaro, & Bukowski, 1999; Schwartz, Dodge, Pettit, & Bates, 1997, 2000; Vitaro et al., 1999).

Neighborhood Context

Neighborhood contexts can also play a role in the development of aggression in children. Crime rates vary significantly from one neighborhood to the next (Wilson & Hernstein, 1985) with higher concentrations in poor inner-city neighborhoods. Consequently, children in poor inner-city neighborhoods are more likely to be exposed to aggressive peers than are children living in other areas (Warren, Schoppelrey, Moberg, & McDonald, 2005). These inner-city neighborhoods have a tendency to have a “code” that promotes aggressive behavior as a means to gain respect from peers (Anderson, 1994, 1999), which can ultimately lead to the formation of gangs.

Impoverished, urban neighborhoods are a breeding ground for the emergence of youth gangs. Hispanic gangs are the fastest growing type of gang in the United States. The majority of gang membership is comprised of Hispanics (47%), followed by African Americans (31%) (*National Youth Gang Survey*, 2006). Research suggests that gang membership increases the probability of juveniles engaging in anti-social and delinquent acts (Spergel, 1990). Hispanics are more likely to engage in delinquent acts with a gang rather than individually (*National Youth Gang Survey*, 2006). Thornberry (1993) has shown that youth violence increased markedly with gang involvement and decreased as

soon as the involvement stopped, challenging the view that associations between gang involvement and antisocial outcomes is due only to selection effects.

Children are more likely to get involved in antisocial activities in neighborhoods where the deviant peer density is high (Wilson & Herrenstein, 1985). Specific areas of a city may also contain groups of families with limited parenting skills or living in extreme poverty. These limitations may contribute to the low level of supervision of peer groups as well as limited opportunity to be selective of peers. These cumulative risks, Patterson et al. (1992) notes, may contribute to the increased deviant behavior among peer groups living in the community.

Classroom Context and the Development of Aggression

Recently researchers have examined the influence of the classroom context on the development of children's aggression (Aber, Jones, Brown, Chaudry, & Samples, 1998; Kellam, Ling, Merisca, Brown, & Ialongo, 1998; Stormshak et al., 1999). Two aspects of classroom context that have received significant attention are the level of aggression in the classroom and the quality of the teacher-student relationship. Research on each of these two factors is summarized next.

Classroom Level of Aggression

Studies have shown that aggregate levels of classroom behaviors contribute to children's adjustment to school (Aber et al., 1998; Kellam et al., 1998). More specifically, Bukowski and Sippola (2001) suggested that being in a classroom with a group of peers who are highly aggressive places children at risk for aggressive behavior. Similarly, Kellam et al. (1998) found that equally aggressive boys differed in their

middle school aggression level by normative classroom aggression level in their first grade classrooms. However, not all students in this study were affected equally by the high aggression classrooms. Low aggressive children in high aggressive classrooms were less likely to be aggressive six years later when compared to the low aggressive children in low aggression classrooms. Elevated levels of classroom aggression seemed to only negatively affect moderate and high aggressive students.

The increase in aggression level attributed to high normative classroom aggression has been explained in at least two different ways. One explanation draws from the person-group similarity model (Tversky, 1977). According to this model, social norms are influenced by the prevalence of behaviors within groups. This model has been found to apply to classroom levels of aggression. According to this reasoning, attitudes supportive of aggression will be viewed negatively only when the aggressive behaviors are infrequent and non-normative in a classroom. When classroom normative beliefs are supportive of aggressive behavior, children's beliefs regarding aggressive behavior become more positive, and this increases their individual aggression (Henry et al., 2000). Stormshak et al. (1999) found that in classrooms where aggression was common, aggressive children were just as popular as non-aggressive children, presumably because in classrooms where aggression is more common, aggressive behavior is likely to be reinforced and less likely to be met with disapproval. As aggression is more widely accepted in a classroom, peers reinforce peer victimization by watching or joining in with the aggressors (O'Connell, Pepler, & Craig, 1999).

Bandura's (1977) social learning theory is another pathway that explains increases in aggressive behavior. Association, opportunity for practice, and motivation all provide the child the resources to learn and generalize a behavior. In a classroom where the normative aggression level is high, the opportunity to interact with non-aggressive peers is limited. Dishion et al. (1999) notes that grouping aggressive children together increases the child's exposure to behavioral reinforcement for aggression and provocation to aggression, therefore increasing individual aggression. Having pro-social peers in the classroom tends to reinforce pro-social behavior (Vitaro et al., 1999) and may ameliorate the risks of behavior problems (Hoglund & Leadbeater, 2004).

Teacher-Student Relationships

Once children begin school, teacher-student relationships are important to classroom adjustment (Birch & Ladd, 1997; Blankemeyer, Flannery, & Vazsonyi, 2002; Gest, Welsh, & Domitrovich, 2005; Greenberg, Speltz, & DeKlyen, 1993; Hamre & Pianta, 2005; Henricsson & Rydell, 2004; Howes & Hamilton, 1992; Howes, Hamilton, & Matheson, 1994; Hughes, Cavell, & Jackson, 1999; Hughes, Luo, Kwok, & Loyd, 2008; Lynch & Cicchetti, 1992; Meehan, Hughes, & Cavell, 2003; Murray & Murray, 2004; Pianta, 1992; Pianta & Stuhlman, 2004; Pianta, Steinberg, & Rollins, 1995; Silver, Measelle, Armstrong, & Essex, 2005). Pianta and Steinberg (1992) found that children who were recommended for retention but were not retained had higher student-teacher relationship quality than those who were retained. Researchers have drawn from attachment theory in explaining the effect of teacher-student relationship on a child's social and academic behavior. Teacher-student relationships have been compared to

parent-child attachment styles (Howes & Hamilton, 1992; Howes et al., 1994). The principal components of these attachment styles can be attributed to teacher-student relationships as well. For example, Howes and Hamilton (1992) used teacher-student attachment classifications based on those developed for parent-child relationships (Ainsworth, Blehar, Waters, & Wall, 1978). Lynch and Cicchetti (1992) have also used attachment theory to develop five patterns of teacher-child relationship that differ in their emotional quality and proximity seeking. Consistent with attachment theory, researchers have theorized that children use the feedback they receive from teacher-student interactions to modify or to reinforce their internal working models of relationships (Bowlby, 1982; Skinner & Belmont, 1993). These models may affect a child's ability to adapt to the school environment and therefore behave accordingly.

Close relationships may allow the child to feel safe and able to approach the teacher for help. A close relationship may also permit the teacher to provide responsive instructions that would, in turn, benefit the child instructionally. Relationships that are characterized by low conflict, low dependency, and high closeness have been associated with higher obedience in the classroom and more self-directed functioning in the classroom (Birch, 1996) and have been linked to positive teacher-student relationships (Birch & Ladd, 1997).

Conversely, classrooms that contain aggressive students make it difficult for teachers to form positive relationships with their students and to use effective behavior management strategies to gain control of the classroom (Brophy, 1996; Hawkins,

VonCleve, & Catalano, 1991). This situation usually leads to teachers' use of coercive and ineffective punitive discipline practices (Hamre & Pianta, 2001).

Teacher-student relationships have also been shown to act as a buffer for maladaptive outcomes (Burchinal, Peisner-Feinberg, Pianta, & Howes, 2002; Hamre & Pianta, 2001; Meehan et al., 2003). There are different ways research has shown that teacher student relationships act as a buffer. Bonding with a prosocial adult figure may assist in learning prosocial skills and “unlearning” aggressive behaviors (Loeber, 1990).

An accepting and supportive relationship with a teacher may also increase the child's sense of school belonging and motivation to behave prosocially. Children's sense of school belongingness is based on teacher and peer support. Studies have shown that children who feel a high sense of relatedness to teachers are more engaged in the classroom, behaviorally and emotionally (Furrer & Skinner, 2003; Hamre & Pianta, 2005). Taylor (1989) found that children who were rejected by their peers and were liked by their teachers were less likely to continue to be rejected. Similarly, Howes, et al. (1994) found that children who had positive relationships with their teachers were better accepted by their peers than those who had insecure teacher-student relationships.

When teachers' relationship with a student is characterized by harsh discipline practices without warmth and support children's sense of belongingness diminishes. Similarly, (Gest et al., 2005), found that teacher supportiveness mediated the link between aggression and school liking. Children with high levels of aggression were less likely to dislike school when they reported high levels of teacher support. This finding suggests that teacher-student relationships play an important role to keep children

engaged in school. Deci, Vallerand, Pelletier, and Ryan (1991) mention all people's need for a sense of autonomy, relatedness, competence. Children's need for relatedness at school is based in large part on their relationships with teachers and peers (Furrer & Skinner, 2003; Hamre & Pianta, 2005). When children don't find support from their teachers, they may turn to their peers for support. Consequently, if their peers endorse aggressive values and behaviors, children will be socialized toward more aggressive values and behaviors.

Ethnicity, Aggression, and Teacher-Student Relationships

Ethnicity and Risk for Aggression

It is important to understand the role of race and ethnicity in the development and prevention of aggression. African American and Hispanic children are 3 times more likely to live in poverty than Caucasian children (Snyder & Sickmund, 2006). Consequently, although all children from impoverished neighborhoods are at risk for later aggression (Kellam et al., 1998), Hispanics and African Americans living in those conditions have been cited as having the highest rates of violence, as both victims and perpetrators (Fox, 1996; Lin, Bussiere, Matthews, & Wilber, 1994; Samples, 1997).

Some but not all antisocial indicators vary by race/ethnicity. According to the National Youth Risk Behavior Survey ("Health Risk Behaviors by Race/Ethnicity," 2005), White, Black, and Hispanic students were equally likely to carry a weapon (18.7%, 16.4%, 19.0%, respectively) and use marijuana at least once a month (20.3%, 20.4%, 23.0%, respectively). However, Hispanic students were more likely than other groups to use hard drugs. The average percentage of Hispanic students who had used

hard drugs (i.e. cocaine, heroin, methamphetamine, and ecstasy) was between 3.6% and 12.2%, whereas for Black students between 1.55% and 3.9% reported using hard drugs and between 2.2% and 7.7% of White students reported using hard drugs. Both Hispanic and Black students were more likely to take part in physical fighting (41.0%, 43.1%, respectively) and dating violence (9.9%, 11.9%, respectively) than White students (33.1%, 8.2%, respectively).

In the early grades, Hispanic children demonstrate lower aggressive behavior relative to other minority groups. Studies have shown that Hispanic children are less aggressive than their African American peers and similar to their White peers (Bellmore, Witkow, Graham, & Juvonen, 2005; Guerra, Huesmann, Tolan, Van Acker, & Eron, 1995). Although Hispanic children tend to have better relationships with their teachers than African American children (Hughes, Gleason, & Zhang, 2005; Murray & Murray, 2004), it is difficult to conclude if lower aggression levels is a direct result of having a positive relationship with teachers or vice versa.

There is a paucity of research on the development of aggression in Hispanics. Although numerous studies include Hispanic children as part of their investigation, they are usually combined with African Americans as a minority group (Barth, Dunlap, Dane, Lochman, & Wells, 2004; Burchinal et al., 2002; Meehan et al., 2003; Stormshak et al., 1999). The term “Hispanic” has been defined as “those individuals who reside in the United States and who were born in or trace the background of their families to one of the Spanish-speaking Latin American nations or to Spain” (Marín & Marín, 1991). The Bureau of the Census uses the term “Hispanic” as an ethnic label and not to denote race

because Hispanics belong to all of the human races. Many researchers often make the mistake of using the Hispanic label as a race when the term “Hispanic” denotes a sharing of cultural values. Therefore, although it is possible for a person to be ethnically Hispanic and racially Black or White at the same time, Hispanics as an ethnic group share similar cultural values. This makes it increasingly difficult for researchers to refer to other articles that do not differentiate between these variations of the Hispanic ethnicity.

Child Ethnicity and Classroom Risk

Minorities may be more at risk for less than optimal classroom contexts for two reasons. First, ethnic minority children may be especially vulnerable to facing poor school contextual variables due to the fact that they usually attend large schools with the greatest economic deprivation (Howley, Kusimo, & Parrott, 2000). Some research has shown that classroom poverty influences aggressive behavior. Kellam, Ling, Merisca, Brown, and Ialongo (1998) found that classroom level poverty predicted later aggressive behavior. Although classroom poverty has been found to predict individual aggression, neighborhood poverty has not (Warren et al., 2005). This difference may be due to poverty level being confounded by ethnicity such that when one is controlled for, the influence of the other is not apparent. Because Hispanics and African Americans are more likely to be in high poverty classrooms as well as inner-city neighborhoods, they may be exposed to higher levels of classroom aggression.

Secondly, children of some ethnic and racial groups are less likely to have teacher support. Hughes, Gleason, and Zhang (2005) found African American students

had less teacher support than White and Hispanic children, who did not differ in teacher support. Furthermore, Meehan, et al. (2003) found that positive teacher-student relationships predicted lower levels of teacher-rated aggression in Hispanics, African Americans, and Caucasians. However, a positive relationship with teachers predicted lower levels of peer rated aggression only in Hispanic and African American children. A reason why teacher-student relationships may be more effective in ethnic minority children may be that these children may rely more on their interaction with their teacher than ethnic majority students. Research has shown that teachers rate African American and Hispanic children as more dependent when compared to Caucasian children (Kesner, 2000). Despite less teacher support, ethnic and racial minority children may be more affected by the quality of teacher-student relationship.

More specifically, Hispanic children may benefit from a close teacher-student relationship. Cultural values are mostly what differentiate Hispanics from other ethnicities. Unlike the Hispanic culture, African American children's strong attachment to family members does not extend beyond close family members (Jones, 2007). One very important cultural value in the Hispanic culture is that of *Respeto*, or respect for one's parents and other authority figures. This cultural value has been described by researchers (Marín & Marín, 1991; Vargas & Busch-Rossnagel, 2000) as a quality that must be present in all social situations including the classroom. This respect has a cultural expectation in which the child will show deference and obey not only their parents but any adult in authority outside of the confines of the family system as well. This is especially important in the school system. Teachers as authority figures may

have a more pronounced effect on Hispanic children due to the nature of their cultural values.

Study Purpose and Hypothesis

The purpose of the study is to investigate the additive and interactive contributions of normative classroom level aggression and teacher support on individual aggression. Although both normative classroom level aggression and teacher support have been associated with aggression, their joint contribution has not been investigated. Children's relationship with their teacher may provide a positive relationship that may protect them from the effects of being placed in a high aggression classroom. This positive relationship provides children with the motivation to accept the teacher's values and to comply with the teacher's directions, rendering them less susceptible to the influence of their aggressive peers. Positive relationships with teachers may serve as a compensatory resource for children in aggressive classrooms (Meehan et al., 2003). This resource fulfills children's fundamental need of a sense of belonging in the classroom. Children who do not achieve a positive relationship with their teacher will seek reinforcement and a sense of belonging from their classmates, making them more susceptible to peer influence. In classrooms in which aggression is normative, this peer influence will socialize children toward aggressive attitudes and behaviors. Furthermore, for children in classrooms with many aggressive peers, the need to belong may increase the negative socialization effect of peers on individual aggression, especially when other sources of relationship support are unavailable. Thus, we expect an interaction such that the contributions of teacher student support to individual

aggression would be greater where the normative level of classroom aggression is higher.

In addition to the primary interest in this study, research has found differences in aggression based on sex and ethnicity. Multiple studies have shown boys have a higher tendency to exhibit externalizing aggression than girls, although girls who do exhibit aggressive behaviors tend to follow the same trajectory as boys (Bongers, Koot, van der Ende, & Verhulst, 2004; Fergusson & Horwood, 2002; Lahey, T.L., Gordon, & Riley, 1999). Sex differences will be explored among the study variables.

Similarly, studies have shown the prevalence of aggression to be different among ethnic groups. Specifically, patterns of aggressive behavior have been disproportionately identified in African American students (Pigott & Cowen, 2000). Additionally, several studies (Hughes et al., 2005; Meehan et al., 2003) have found lower teacher-student relationships in minority (i.e., African American and Hispanic students grouped together) than White students. Consequently, the role of child race/ethnicity on study variables and on the relations among variables will also be investigated.

In summary, our hypotheses for this study are: a) teacher support is negatively associated with changes in children's individual peer-rated and teacher-rated aggression, b) the normative level of classroom aggression is positively associated with individual teacher-rated aggression, and c) teacher support and normative classroom aggression interact such that the effect of teacher support on individual teacher-rated aggression is stronger in classrooms with higher levels of normative aggression.

CHAPTER II

RESEARCH DESIGN AND METHODS

Participants

A total of 1384 first grade children attending one of three urban city school districts in the Southwest United States met the following criteria: 1) scored below the median for their school district on a measure of literacy administered to all enrolled students in May preceding entrance to first grade or below the median on a literacy test administered in October of first grade, 2) enrolled in regular education at the beginning of first grade, 3) had never been retained, and 4) belonged to a family that spoke either English or Spanish. Written parental consent for participation in the study was obtained for 784 children. Analyses on a broad range of archival variables including performance on a district-administered literacy test (standardized within district, due to differences in test used), age, gender, ethnicity, eligibility for free or reduced-price lunch, bilingual class placement, cohort, and school context variables (i.e., % ethnic/racial minority; % economically disadvantaged), did not indicate any difference between children whose parents consented and those who did not. Although we cannot rule out differences between consenters and non-consenters on variables not included in our data, we can conclude that the resulting sample of 784 participants (52.6% male) closely resembles the eligible sample on demographic and literacy variables relevant to students' educational performance.

The sample included 34.1% White (N=267), 37.4% Hispanic (N=293), 23.2% African-American (N=23.2), 3.6% Asian/Pacific Islander (N=28), 0.3% Native American/Alaskan Native (N=2) and 1.5% other (N=12). There were 47.4% girls (N=372) and 52.6% boys (N=412). Of the sample, 58.7% (N=460) were eligible for free or reduced-price lunch, and 14% (N=110) were bilingual according to district records and 58% (N=456) of our participants lived in homes where at least one adult had at least a high school education. At least one adult was employed full time in 53.6% (N=420) of the participants' homes.

The 87 participants who did not have teacher data at Time 2 were excluded, resulting in a study sample of 697. Attrition analyses showed that these 697 participants differed from the excluded 87 participants on only 1 out of 16 study and demographic variables at baseline. Those students with missing teacher data at Time 2 were rated by their peers as less aggressive ($M = .65$ $SD = .91$) than were students not missing teacher data ($M = 1.27$, $SD = 2.13$) ($p = .035$). However, after applying the Bonferroni correction for multiple tests, no statistically significant differences were found for children with and without Time 2 teacher data.

The overall rate of missingness for the 697 participants with some data at each assessment wave was 11.45%, ranging from child's ethnicity and gender at 0% to teacher-rated conduct problems at Time 1 at 29.41%. As a further test of non-selective attrition, for each study variable, we tested for differences between those students with and without that variable on demographic variables (eligible for free/reduced lunch, child ethnicity, language child was tested on based on a language proficiency test,

bilingual status, child gender) district literacy scores, intelligence, and study variables at Time 1 and Time 2. Given the large number of tests (150), only differences significant at a p value $< .001$ were noted. No test indicated a statistically significant difference. Based on these results, we concluded that the assumption that data were missing at random was justifiable.

Of these 697 participants, 361 (51.8%) were male, and the racial/ethnic composition was 33.6% White, 37.7% Hispanic, 23.4% African American, and 3.4% Asian/Pacific Islander. At entrance to first grade, children's mean age was 6.57 ($SD = .38$) years. Children's mean score for intelligence as measured with the Universal Nonverbal Intelligence Test (McCallum & Bracken, 1997) was 92.98 ($SD = 14.56$). Based on school records, 14.8% of children were considered bilingual. Based on family income, 58.5% of participants were eligible for free or reduced lunch. For 28.7%, the highest educational level in the household was a high school certificate or less.

Based on these findings, we imputed the missing values based on these 697 children using SAS PROC MI. Regression imputation was used instead of listwise or pairwise deletion in order to preserve the most amount of data and increase power (Roth, 1994).

Measures

In March of Time 1 and Time 2, questionnaire packets were mailed to teachers for each study participant. This packet included the measures of the teacher's perception of student-teacher support and conflict and student aggression. Teachers received compensation for completing and returning the questionnaire. Peer sociometric data

were obtained via individual interviews conducted between February and May of each year.

Teacher-Student Support

The 22-item Teacher Student Relationship Inventory (TSRI: Hughes, Cavell, & Willson, 2001) is adapted from the Network of Relationships Inventory (NRI: Buhrmester & Fuhrmester, 1987), a child-report measure of relationship quality informed by Robert Weiss's (1974) theory of the provision of social support. Items were modified so that teachers rather than the child report on a 5-point Likert-type scale their provision of six types of social support (affection, admiration, intimacy, satisfaction, nurturance, and reliable alliance) and conflict in their relationships with individual students. An exploratory factor analysis on 335 participants from the second cohort of the larger study suggested three factors: Warmth (13 items), Intimacy (3 items) and Conflict (6 items). Results of confirmatory factor analysis on 449 participants from the first cohort of the larger study found that the three-factor model provided a good fit for the data ($\chi^2 = 697.803$ (204), $p < .001$; CFI = .92, RMSEA = .074). For the combined cohorts, fit indices were also good: CFI = .89 and RMSEA = .06. Furthermore, the null hypothesis of factor invariance across cohorts and times could be retained at the .01 level. Because the Intimacy and Warmth scales were moderately correlated (.43) and both assess positive relatedness, a total Support score was computed as the mean item score on these 16 items. The internal consistency was .94 for the Support score (16 items) and .91 for the Conflict score (6 items). Example Support Scale items include "I enjoy being with this child"; This child gives me many opportunities to praise him or

her”; “I find I am able to nurture this child”; and “This child talks to me about things he/she doesn’t want others to know.” A Total TNRI Score was also computed, using the 13 Warmth items, the 3 Intimacy Items, and the 6 (reverse coded) Conflict items. The internal consistency for the Total TNRI score was .94 (22 items).

The TNRI support scale has demonstrated good predictive and concurrent validity, with support being positively associated with peer acceptance, and cooperative engagement and negatively associated with aggression (Hughes & Kwok, 2006; Meehan et al., 2003). Furthermore, correlations between the teacher support scale and peer assessments of teacher-student support have ranged from .29 to .53 (Hughes & Kwok, 2007; Hughes, Yoon, & Cavell, 1999).

Peer-rated Individual Aggression and Teacher Support

Peer and teacher ratings completed in the Spring of each year were used for the baseline individual aggression as well as Time 2 individual aggression and teacher support. Peer nominations were used to obtain classmates’ evaluations of children’s social behaviors. Research assistants individually interviewed children at school. Children were asked to nominate as few or as many classmates as they wished who best represented the characteristics asked about. Of interest to this study were two items: one assessing *aggression* (“Some kids start fights, say mean things, or hit others”) and the other assessing *teacher support* (“Some kids get along with their teachers. They like to talk to their teachers and their teachers enjoy spending time with them.”) Following each item, students were asked, “What kids in your class are like that?” Each classmate received an aggression and support score that was the sum of the number of nominations

that child receives for that item. Because classrooms differed in the number of children providing nominations sociometric scores were standardized within classrooms.

Elementary children's peer nomination scores derived from procedures used in this study have been found to be stable over time (Coie & Dodge, 1983; Hughes, 1990; Masten, Morison, & Pellegrini, 1985; Wasik, 1987). Because reliable and valid sociometric data can be collected using the unlimited nomination approach when as few as 40% of children in a classroom participate (Terry, 1999), sociometric scores were computed only for children in classes where at least 40% participated in the sociometric interviews. Although only children with written parental consent were allowed to nominate children, all children in the class were rated and eligible for nomination. Thus, children's z-scores were standardized based on scores for all the children in the classroom.

Teacher-rated aggression was taken from the conduct problems subscale on the Teacher Strengths and Difficulties Questionnaire (SDQ, Goodman, 1997). This is a brief 25-item screening measure for psychopathology. Each item is rated on a 0-2 scale ("Not True", "Somewhat True", "Certainly True"). The SDQ yields five scales (conduct problems, hyperactivity, emotional problems, peer problems, and prosocial), each consisting of 5 items, and a total problems scale, comprised of items on the four problem scales. The total problems scale is predictive of psychiatric "caseness" (Goodman, 1997). Results of confirmatory factor analysis support the five-factor structure of the SDQ (Hill & Hughes, 2007). The mean items score on the Conduct Problems scale was

used in this study. The internal consistency for the Conduct Problems score was .68 and .66 at Time 1 and Time 2, respectively.

Classroom-level Aggression

Peer nominations were used to assess classroom levels of aggression. Classrooms differed in the median percentage of possible nominations classmates received for the aggressive descriptor. This median proportion constituted our measure of normative classroom aggression. The median percentage of nominations was used instead of the mean percentage of nominations received to control for outliers (e.g. small number of highly aggressive children) and to better represent the classroom composition (Stormshak et al., 1999).

CHAPTER III

RESULTS

This chapter reports results of preliminary analyses, including descriptive and correlational analyses, followed by results of analyses relevant to the study's hypotheses.

Descriptive Statistics

The means, standard deviations, skewness, and kurtosis of the measures used in all analyses are presented in Table 1. Skewness and kurtosis refer to the shape of the data distribution. According to Kline (1998), analyses may be problematic when the univariate skew index is greater than 3.0 and the univariate kurtosis index is greater than 10.0. Peer-rated aggression at Time 1 reflects a kurtosis of 10.07. Therefore, we used the MLR maximum likelihood parameter estimates with standard errors that are robust to non-normality.

Table 1
Descriptive Statistics for Study Variables

Variable	<i>n</i>	<i>M</i>	<i>SD</i>	Skewness	Kurtosis
AGG T1	548	1.27	2.13	2.72(.10)	10.07(.21)
AGG T2	580	1.39	2.32	2.59(.10)	7.60(.20)
TNRIS T1	605	3.75	0.77	-0.63(.10)	0.04(.20)
TNRIS T2	593	3.67	0.79	-0.56(.10)	-0.26(.21)
TSUP T1	548	2.10	1.86	1.07(.10)	1.24(.21)
TSUP T2	580	2.31	2.15	1.46(.10)	2.52(.20)
TCONDUC T1	492	0.38	0.49	1.41(.11)	1.26(.22)
TCONDUC T2	590	0.37	0.49	1.48(.09)	1.48(.20)
MEDAG	580	0.03	0.03	1.05(.10)	0.41(.20)

Note. T1=Year 1, T2=Year 2; AGG = Peer-rated aggression, TNRIS=Teacher Network of Relationships Inventory, TSUP= Teacher-rated support, TCONDUC=Teacher-rated aggression, MEDAG= Normative Classroom aggression.

The data were also examined for outliers. According to Stevens (1996), for any type of distribution of variables, the *z* scores over 4 in absolute value should be considered outliers. No outliers were found when the formula above was applied to all the variables.

Relation of Demographic Variables to Study Variables

Using multiple imputation in SAS, we generated 10 complete datasets. The sample statistics are based on the averages across all 10 imputed datasets. Table 2 presents means and standard deviations for analysis variables separately by sex and ethnicity. Table 3 presents the average correlations among the analysis variables.

Table 2
Study Variable Means by Gender and Ethnicity

	AGG T1		AGG T2		TNRIS T1		TNRIS T2		TSUP T1		TSUP T2		TCONDUC T1		TCONDUC T2		FSIQ T1		MEDAG	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Native American/Alaskan																				
Native																				
Female																				
(N=2)	0.30	0.68	1.82	0.96	4.00	0.49	3.68	0.57	1.79	0.99	4.34	1.58	0.04	0.06	0.32	0.19	70.50	10.61	0.01	0.02
Male																				
(N=0)																				
Asian/Pacific																				
Islander																				
Female																				
(N=14)	0.62	1.39	0.37	0.62	3.97	0.62	3.98	0.44	2.04	1.54	2.66	1.72	0.18	0.33	0.17	0.33	89.14	15.12	0.01	0.02
Male																				
(N=10)	1.63	2.03	0.78	1.68	3.84	0.82	3.77	0.61	1.20	1.43	2.28	1.43	0.33	0.55	0.16	0.45	103.30	15.50	0.02	0.03
African																				
American																				
Female																				
(N=80)	1.19	1.62	1.05	1.52	3.64	0.84	3.64	0.87	1.94	1.59	2.11	1.71	0.42	0.47	0.47	0.53	85.70	14.67	0.03	0.03
Male																				
(N=83)	3.02	2.72	3.29	2.93	3.32	0.79	3.35	0.95	1.31	1.47	1.57	2.03	0.84	0.62	0.72	0.59	86.45	13.83	0.03	0.03
Hispanic																				
Female																				
(N=130)	0.80	1.83	0.55	1.33	4.01	0.65	3.84	0.68	3.11	2.29	3.70	2.50	0.24	0.36	0.22	0.37	93.73	12.49	0.03	0.04
Male																				
(N=133)	1.84	2.84	1.75	2.57	3.72	0.70	3.52	0.72	1.98	1.76	1.81	1.92	0.39	0.46	0.36	0.47	95.21	14.76	0.04	0.04
Caucasian																				
Female																				
(N=105)	0.53	1.19	0.80	2.01	3.93	0.72	3.89	0.69	2.48	1.85	2.97	2.28	0.21	0.31	0.24	0.38	96.37	14.13	0.02	0.03
Male																				
(N=129)	1.12	1.68	1.67	2.64	3.66	0.80	3.58	0.80	1.67	1.43	1.76	1.86	0.42	0.52	0.38	0.51	95.28	13.97	0.02	0.03
Other																				
Female																				
(N=5)	0.59	0.90	0.02	1.26	3.96	0.81	4.08	1.19	3.43	2.59	3.28	2.44	0.20	0.28	0.42	0.69	106.20	17.31	0.02	0.02
Male																				
(N=6)	3.10	2.08	2.83	3.37	3.11	1.09	2.89	0.36	1.59	1.36	0.67	0.82	0.84	0.60	0.67	0.68	100.50	9.93	0.02	0.03

Note. T1=Year 1, T2=Year 2; AGG = Peer-rated aggression, TNRIS=Teacher Network of Relationships Inventory, TSUP= Peer-rated teacher support, TCONDUC=Teacher-rated aggression, FSIQ = Full Scale IQ, MEDAG= Median Classroom aggression

Table 3
Study Variable Correlations

	P-rated Agg T2	T-rated Sup T1	T-rated Sup T2	P-rated Sup T1	P-rated Sup T2	T-rated Agg T1	T-rated Agg T2	Median Agg
P Agg T1	0.52	-0.36	-0.25	-0.16	-0.23	0.67	0.44	0.15
P Agg T2	-	-0.35	-0.31	-0.08	-0.26	0.51	0.66	0.14
T Support T1		-	0.42	0.35	0.31	-0.56	-0.45	-0.07
T Support T2			-	0.22	0.44	-0.35	-0.54	-0.06
P Support T1				-	0.35	-0.28	-0.16	0.02
P Support T2					-	-0.28	-0.33	0.00
T Agg T1						-	0.57	0.11
T Agg T2							-	0.09

Note. T1=Year 1, T2=Year 2; P Agg = Peer-rated aggression, T Support = Teacher rated support, P = Peer rated teacher support T Agg = Teacher-rated aggression, MEDAG= Normative Classroom aggression.

As expected, Time 2 teacher-rated support was negatively correlated with Time 1 ($r = -.25, p < .01$) and Time 2 ($r = -.31, p < .01$) peer-rated aggression as well as Time 1 ($r = -.35, p < .01$) and Time 2 ($r = -.54, p < .01$) teacher-rated aggression. Furthermore, Time 1 ($r = .67, p < .01$) and Time 2 ($r = .66, p < .01$) teacher- and peer-rated aggression were positively related, as were Time 1 ($r = .35, p < .01$) and Time 2 ($r = .44, p < .01$) teacher- and peer-rated teacher support, indicating consistency between teacher and peers. The relationships between Time 1 and Time 2 normative classroom aggression and peer-rated aggression were small but statistically significant (.15 and .14 at Time 1 and Time 2, respectively). Normative classroom aggression was not statistically significantly related to teacher- or peer-rated- support at Time 1 or Time 2.

One-way ANOVAs between subjects were performed to test for mean differences in

study variables between boys and girls and between different ethnic groups. Results indicated significant sex differences for six variables: Time 1 $F(1, 546) = 50.16, p < .001$ and Time 2 $F(1, 588) = 33.48, p < .001$ peer-rated aggression; Time 1 $F(1, 490) = 24.27, p < .001$ and Time 2 $F(1, 588) = 14.09, p < .001$ teacher-rated aggression; Time 1 $F(1, 546) = 36.41, p < .001$ and Time 2 $F(1, 578) = 71.98, p < .001$ peer-rated TSRS; and Time 1 $F(1, 603) = 23.54, p < .001$ and Time 2 $F(1, 591) = 24.66, p < .001$ teacher-rated TSRS. At Time 1, boys had higher teacher-rated ($M = .24, SD = 1.15$) and peer-rated ($M = .32, SD = 1.16$) aggression than girls ($M = -.20, SD = .81$ and $M = -.27, SD = .70$, respectively). At Time 2 boys also had higher teacher-rated ($M = .15, SD = 1.08$) and peer-rated ($M = .26, SD = 1.11$) aggression than girls ($M = -.15, SD = .88$ and $M = -.21, SD = .78$, respectively). At Time 1 girls had higher teacher-rated ($M = .20, SD = .95$) and peer-rated ($M = .12, SD = .97$) TSRS than boys ($M = -.19, SD = 1.01$ and $M = -.33, SD = .77$, respectively). At Time 2 girls also had higher teacher-rated ($M = .21, SD = .91$) and peer-rated ($M = .18, SD = .96$) TSRS than boys ($M = -.19, SD = 1.04$ and $M = -.42, SD = .74$, respectively).

There were also significant ethnic differences for six variables: Time 1 $F(3, 538) = 6.890, p < .001$ and Time 2 $F(3, 568) = 7.348, p < .001$ peer-rated aggression; Time 1 $F(3, 480) = 12.212, p < .001$ and Time 2 $F(3, 578) = 15.820, p < .001$ teacher-rated aggression, Time 1 peer-rated TSRS $F(3, 538) = 2.347, p < .05$; Time 1 $F(3, 592) = 7.989, p < .001$ and Time 2 $F(3, 581) = 3.029, p < .05$ teacher-rated TSRS; and Time 2 normative classroom aggression level $F(3, 568) = 8.029, p < .001$. For each significant ANOVA for ethnic groups, Tukey post hoc tests for pairwise comparisons were conducted to identify

which pairs differed. For Time 1 and Time 2 peer- and teacher-rated individual aggression, African American students scored higher than White and Hispanic students. Hispanic and White students did not differ on aggression. For Time 1 and Time 2 teacher-ratings of TSRS, White and Hispanic students scored higher than African American students. Additionally, for Time 1 peer-rated TSRS, Hispanic students received higher scores than African American students. African American and Hispanic students were more likely than White students to be placed in an aggressive classroom. Means and standard deviations are reported in Table 4.

Table 4
Study Variable Means by Ethnicity

Ethnicity	T1 T-Agg		T1 T-Sup		T1 P-Agg		T1 P-Sup		T2 T-Agg		T2 T-Sup		T2 P-Agg		T2 P-Sup	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Af-Am	.48	1.21	-.33	1.05	.40	1.20	-.28	.85	.48	1.19	-.21	1.18	.33	1.09	-.31	.81
Hispanic	-.12	.87	.16	.89	-.08	.96	-.01	.96	-.19	.81	.07	.89	-.14	.87	-.06	.95
White	-.14	.91	.03	1.02	-.02	.89	-.10	.88	-.08	.95	.07	.99	.08	1.03	-.13	.89

Note. Af-Am = African American; T-Agg = Teacher-rated aggression; T-Sup = Teacher-rated teacher support; P-Agg = Peer-rated aggression; P-Sup = Peer-rated teacher support; T1 = Time 1; T2 = Time 2

Imputation Analyses

We recognized there was clustering in our data; 697 children were in 253 classrooms. Such clustering can be problematic in ordinary least squares regression because failure to account for the dependence between individual observations and the cluster to which they belong violates the assumption of independence and may result in

spurious findings.

The mean number of children per teacher was 2.75 ($SD = 2.14$) and 106 students were the only study child in the classroom. The number of classrooms with only one child poses problems in using multilevel analyses because of lack of power. Due to the nature of the study, we recognize that children are grouped within classrooms, which are grouped into schools. We considered clustering at the school versus classroom level due to the number of single observations at the classroom level and based on the reasoning that classrooms in a school would be more similar than classrooms across schools. There were between 1 and 57 children per school building, and only 2 children were the only study child in the school. The mean number of children per school was 20.63 ($SD = 17.85$).

To determine if failure to model school level clustering would significantly impact results, we determined the design effect according to Muthén and Satorra (1995). SPSS mixed model was used to obtain the percentage of variance at level 1 (child) and level 2 (school), with teacher-rated aggression at Time 2 as the dependent variable. The resulting intraclass correlation coefficient was .02235. The design effect, calculated as $1 + (\text{average cluster size} - 1) * ICC$ (Muthén and Satorra, 1995) was 1.3987. According to Maas and Hox (2001), a design effect of less than 2 does not likely lead to biased results when using a single level analysis. Thus, we decided to use a single level model. However, analyses were conducted in Mplus (Muthén & Muthén, 2004) using the cluster analytic feature in order to adjust the standard errors based on any dependencies due to classroom level clustering.

Multiple Regression Analyses

We expected peer-rated and teacher-rated TSRS and normative level of classroom aggression would predict teacher-rated aggression. Furthermore, we expected the relation between teacher support and teacher-rated aggression would be stronger in classrooms with higher levels of normative aggression, above baseline aggression and demographic variables. Due to the confound in the measurement of classroom normative aggression and individual peer-rated aggression, we were not able to test the joint or interactive effects of normative classroom aggression on peer-rated aggression.

Time 2 teacher-rated aggression was regressed on Time 1 teacher-rated aggression, sex, ethnicity, and both peer-rated and teacher-rated Time 2 TSRS, Time 2 normative aggression, as well as the interaction between Time 2 normative aggression and both peer-rated and teacher-rated support. Time 2 peer-rated aggression was regressed on Time 1 peer-rated aggression, sex, ethnicity, and both peer-rated and teacher-rated Time 2 TSRS.

Based on this study's findings that African American students differed from both Hispanic and White students (who were similar) on measures of aggression and teacher support, we created a dummy variable for ethnicity, with African American coded as 1 and others as 0. Results of the regression analysis conducted in MPlus found a significant effect of Time 1 aggression on Time 2 teacher- ($t = 9.45, p < .001$) and peer-rated ($t = 9.23, p < .001$) aggression indicating a moderate level of stability in aggression across time periods.

In the analysis with peer-rated aggression as the outcome, sex made a unique contribution, with boys rated more aggressive than girls ($t=3.78, p<.001$), above baseline levels and other demographic variables. African American status also made a unique contribution, with African American students rated as more aggressive than other groups ($t=2.78, p<.01$). As hypothesized, Time 2 teacher-rated TSRS uniquely predicted lower levels of Time 2 peer-rated aggression ($t=-3.70, p<.001$). Results are reported in Table 5.

For the analysis in which teacher-rated aggression was the outcome, African American status predicted aggression at Time 2 ($t=3.11, p<.01$). As hypothesized, Time 2 teacher-rated TSRS predicted lower levels of Time 2 teacher-rated aggression ($t=-7.24, p<.001$). The interaction between normative aggression and teacher-rated aggression was not significant. Results are reported in Table 6.

Table 5
Summary of Multiple Regression Analysis for Predicting Time 2 Peer-rated Individual Aggression $R^2 = .39$

Variable	<i>B</i>	<i>B SE</i>	<i>t</i>	β
Individual Peer-Rated Aggression T1	.47	.05	9.23**	.46
Sex	.04	.01	3.78**	.12
Ethnicity AA vs Other	.04	.02	2.78*	.10
Peer Rated Teacher Support T2	-.01	.01	-.94	-.04
Teacher Rated Teacher Support T2	-.03	.01	-3.70**	-.16

* $p<.01$. ** $p<.001$.

Table 6

Summary of Multiple Regression Analysis for Predicting Time 2 Teacher-rated Individual Aggression $R^2 = .47$

Variable	<i>B</i>	<i>B SE</i>	<i>t</i>	β
Individual Teacher-Rated Aggression T1	.39	.04	9.45*	.41
Sex	-.02	.06	-.40	-.01
Ethnicity AA vs. Other	.24	.08	3.11*	.10
Peer Rated Teacher Support T2	.02	.05	.33	.01
Teacher Rated Teacher Support T2	-.38	.05	-7.24*	-.38
Normative Classroom Aggression T2	-.33	.65	-.33	-.02
NormAggressionXPeer-rated Sup T2	-.70	.85	-.70	-.04
NormAggressionXTeacher-rated Sup T2	-.11	.71	.11	-.01

Note: NormAggressionXPeer-rated Sup T2 = interaction between classroom aggression and peer-rated teacher support; NormAggressionXTeacher-rated Sup T2 = interaction between classroom aggression and teacher-rated teacher support

* $p < .001$

Next, we tested whether the model was an equally good fit for Hispanic, African American, and White groups of children. To answer this question, we conducted multigroup analysis using MPlus. Only children who were Hispanic, African American, and White ($N = 660$) were used, as other groups had too few participants. Specifically, for each outcome, we determined the χ^2 for a model in which the structural paths for each of the groups could vary (unconstrained model) and the fit for a model in which the path coefficients were constrained to be equivalent across the three groups. Results are

reported in Table 7. For each of the aggressive outcomes the χ^2 difference test was not statistically significant.

Table 7
 χ^2 Outcomes for Models Using Three Ethnic Groups (AA, H, W)

	Teacher-rated Agg χ^2 , df	Peer-rated Agg χ^2 , df
Constrained	2.31, 6	14.28, 11
Unconstrained	0,0	0,0
Difference	2.31	14.28

Note. Agg = aggression

CHAPTER IV

DISCUSSION AND CONCLUSION

The purpose of the study was to investigate the additive and interactive contributions of classroom level aggression and teacher support on individual aggression. It was expected that a supportive teacher-student relationship would predict lower levels of children's individual aggression, above the effects of prior levels of individual aggression and demographic variables. We also expected that normative classroom aggression would be positively related to children's teacher-rated aggression after controlling for prior individual aggression and demographic variables. Furthermore, we expected an interactive effect for normative classroom aggression and teacher-rated TSRS such that the ameliorative effect of teacher support on teacher-rated aggression would be stronger in classrooms with higher levels of aggression. Additionally, we explored the role of sex and race/ethnicity on study variables and their relationships.

This chapter discusses the results presented in Chapter III, and how these results contribute to the research literature on classroom normative levels of aggression and teacher-student relationships in relation to the development of aggression among children differing in sex and ethnic/racial status. This chapter also reviews the limitations of the study and presents suggestions for future research.

Relationship Between Teacher Support and Individual Child Aggression

Consistent with our proposed model of teacher-student relationships, we found that after controlling for Time 1 levels of aggression and demographic variables, teacher-rated TSRS predicted Time 2 individual peer-rated and teacher-rated aggression. Although the finding that teacher-rated support predicted Time 2 individual teacher-rated aggression could be due to a possible source effect, due to the fact that the teacher provided ratings of both teacher support and child aggression, shared source does not explain the finding that teacher-rated support uniquely predicted Time 2 peer-rated aggression. This finding is consistent with results of previous research indicating the negative relationship between teacher support and maladaptive behavior (Burchinal et al., 2002; Hamre & Pianta, 2001). However, it is the first study to investigate the association between teacher-rated support and changes in peer-rated aggression. Thus, the current study's findings indicate that the association between support and aggression is robust across measures and sources. This finding reinforces the importance of teacher support to children's behavioral trajectories in the early grades.

Contrary to expectations, Time 2 peer-rated TSRS did not predict Time 2 peer-rated or teacher-rated aggression, above the covariates. This finding may reflect a relative lack of awareness of the affective quality of the teacher-student relationship in second graders. In support of this interpretation, Hughes (personal communication, 2008) explored the correspondence between peer and teacher reports of teacher student relationship quality in grades 2 to 5 and found greater correspondence with increasing years.

Contrary to expectations, Time 2 normative classroom aggression did not predict Time 2 teacher-rated aggression, above previous aggression and demographic variables. This finding is inconsistent with those of Kellam (1998) who found that first grade boys who were placed in aggressive classrooms were at risk for aggression in middle school. Boys who were more aggressive in first grade and in aggressive classrooms were at markedly increased risk for later aggression. However, Kellam and his colleagues (1998) studied the effect of classroom aggression 5 years later. Differences in findings between Kellam et al. and the current study may suggest that the effects of normative aggression may not be apparent until years later. Similarly, Thomas and colleagues (2006) demonstrated that a child's number of year of exposure to an aggressive classroom was important. Specifically, one year of such exposure did not have the same debilitating effects as did three years of exposure. These findings suggest that being placed in an aggression classroom for multiple years may compound the negative effects on individual aggression.

We did not find the hypothesized interaction between classroom normative aggression and teacher support on teacher-rated aggression. We expected teacher support would serve as a protective factor in the presence of the risk of a higher-aggressive classrooms. However, we did not find that normative classroom aggression was a risk for increased aggression. If a higher-aggressive classroom is not a risk, teacher support may not serve as a protective feature in higher-aggressive classrooms. Rather, it is an asset to children regardless of the level of normative classroom aggression.

Gender and Ethnic Differences on Study Variables

Consistent with the literature, preliminary analyses indicated that boys were rated as having higher aggression levels than girls (Broidy et al., 2003; Kellam et al., 1998; Ladd, Birch, & Buhs, 1999; Stormshak et al., 1999). Additionally, girls were rated as having higher levels of teacher support than boys. This finding replicates earlier findings (Birch & Ladd, 1997; Hughes, Cavell, & Willson, 2001; Murray & Murray, 2004). This finding is not unexpected, given that teachers are more likely to form supportive relationships with students who are less behaviorally disruptive.

Similarly, African American students were rated by peers as having less teacher support than Hispanic students. This finding is consistent with findings by Ladd, et al. (1999), Hughes and Kwok (2007), Murray and Murray (2004), and Murray, Murray, and Waas (2008). Research suggests that African American students are rated by teachers as having more behavioral difficulties (Pigott & Cowen, 2000). Students that are difficult to manage in the classroom may lead teachers to refrain from engaging in emotionally positive interactions with them. Another reason may be that teachers may be less prepared to teach culturally diverse students and may have difficulties forming supportive relationships with African American students. Research has suggested that ethnicity of child and teacher may be among several factors that influence teacher-student relationship, particularly for African Americans (Saft & Pianta, 2001). Alexander and Entwisle (1988) found that first grade teachers responded differently to African American and White children displaying the same behavior. Teacher-student communication patterns as well as expectations differ between ethnicities (Brady,

Tucker, Harris, & Tribble, 1992). Similar ethnic backgrounds may help teachers and students establish a positive relationship. Research has shown that teachers perceive their relationships with students with similar ethnic backgrounds as more positive than those relationships in which their ethnicities are not the same (Murray et al., 2008; Saft & Pianta, 2001). Teachers may find it more difficult to identify with students of a different ethnic background and thus make building supportive relationships a demanding task.

Preliminary analyses indicated that African American and Hispanic students were more likely to be placed in an aggressive classroom than White students. This finding is consistent with literature finding that minority students experience less benign educational environments (Bankston & Caldas, 1998; Crosnoe, 2005; Roscigno, 1998). More specifically, Crosnoe (2005) found that Hispanic students were more likely to be in “problematic” schools than were White and African American students. These findings suggest that minorities are more at risk for negative environments both at the school and classroom level.

Relationships Between Teacher Support, Classroom Aggression, and Ethnicity

Extending research examining the association between teacher support and aggression, we investigated whether teacher support is differentially predictive for children across ethnicity. Although, preliminary mean difference analyses indicated that African American children had lower teacher support scores than Hispanic and White children, we found no evidence that the pattern of relationships between TSRS and aggression differed for students differing in ethnicity. These findings were inconsistent

with findings by Meehan and her colleagues (2003), who found TSRS was more beneficial for aggressive African American and Hispanic students than for aggressive Caucasian students. One reason for this difference may be that students for the current study were selected on the basis of performing below the median on a measure of reading readiness skills, whereas students in the Meehan et al. study were selected on the basis of scoring high on a measure of aggression.

Limitations

There were a number of limitations that may have affected the results of this study. Using the median level of nominations may be less sensitive to measuring normative aggression in a 2nd grade classroom than observations. Children may nominate relative to the other students in the classroom. In a classroom where aggressive behavior is more normative, children who would otherwise be considered as aggressive may not be nominated. Observations based on objective behaviors would control for normative aggression and be more reliable. The use of observations would also permit an investigation of normative classroom aggression on peer-rated aggression, which was not possible in the current study due to the measurement confound for classroom and individual aggression. Furthermore, this study used teacher and peer ratings alone to measure individual and classroom behavior. Kellam (1998) used teacher ratings as a measure of classroom aggression in first grade. Future research may employ multiple methods of assessing normative level of classroom aggression such as peer and teacher ratings in addition to classroom observations, in order to decrease measurement error.

Another limitation in our study is that we did not assess longer-term effects of normative aggression, teacher support, or their interaction on individual aggression. Other studies (Thomas et al., 2006) have measured the additive effects of being exposed to an aggressive classroom for more than a year. Future research may measure the additive effects of being placed in an aggressive classroom and levels of teacher support. The effects of being placed in an aggressive classroom may dependent on the amount of exposure during the elementary school years.

Because the sample used in this study was not representative of the full range of academic ability, results may not generalize to samples that are more representative in terms of academic ability. The benefits from teacher support in an aggressive classroom may be more evident for those students who are highly aggressive and less for those in the moderate and low aggressive ranges. Future research may study the possible interaction effect on students based on different levels of aggression.

Implications

Positive teacher-student relationships are crucial to the social development of children. Consistent with earlier research, our findings suggest that higher levels of teacher-student relationship support (TSRS) in the early grades ameliorate future aggression. Schools should focus on enhancing teacher-student relationships in the early grades by incorporating skills training in building positive relationships with students in their teacher trainings and in-services. More specifically, teachers would benefit from skills that assist in building relationships with boys and African American students. These students are being adversely affected by diminished teacher support in the early

grades. Children who are placed in a classroom environment where they feel motivated and supported by their teacher can foster pro-social behavior and diminish aggressive behavior.

Furthermore, the findings in this study suggest that Hispanic and African American students are more likely to be disadvantaged before the school year starts based on the classroom in which they are placed. More efforts should be focused on the equal schooling of minority students. Educational policies may help these populations by implementing changes at the school level that may include school zoning and organization.

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